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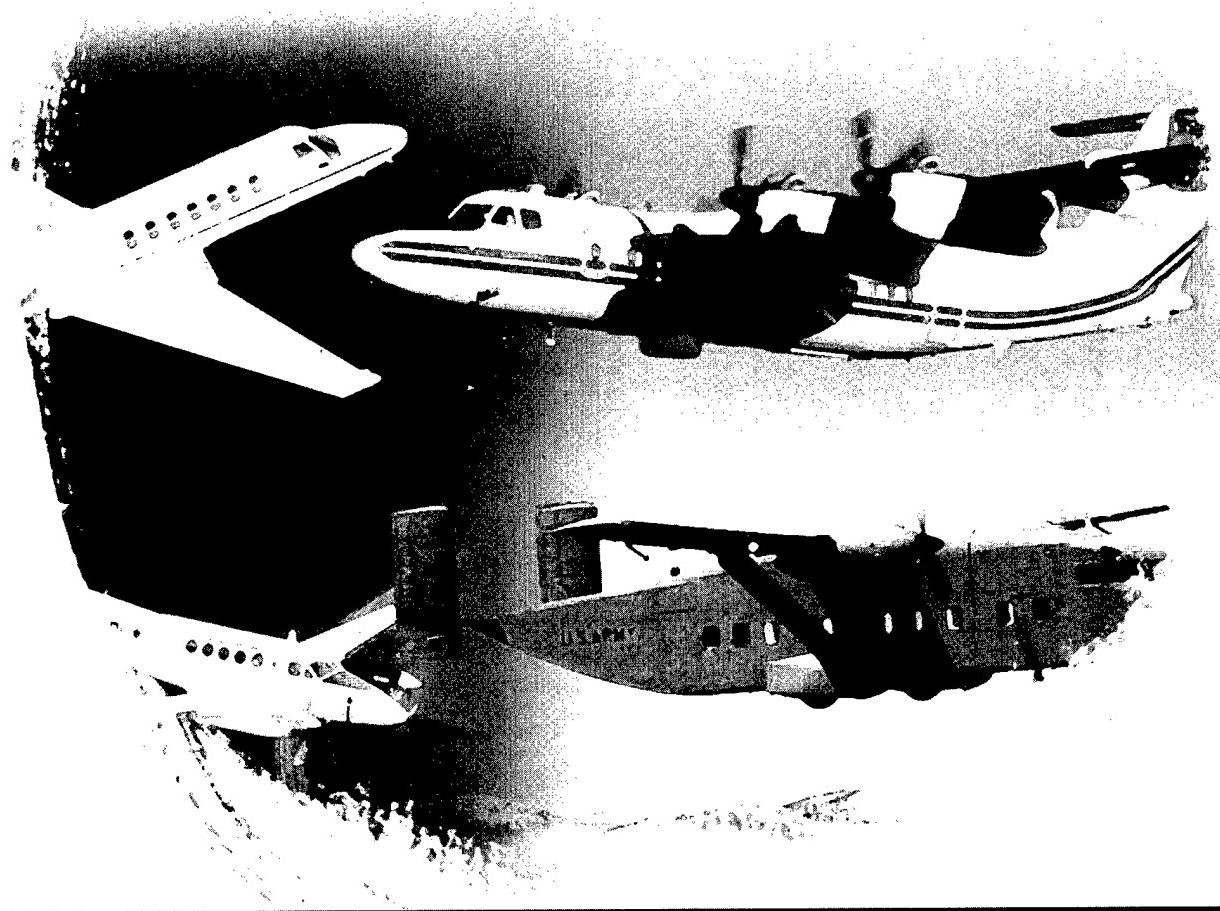
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**FIXED WING SPOTLIGHT**  
**Current and Future Issues**

# Fixed Wing Evaluation Trends from DES

## GENERAL OBSERVATIONS:

**D**uring recent DES assistance visits fixed wing units performed well. Whether a unit was battalion sized or a small state flight detachment, evaluation results were generally good. Units are completing most required training requirements while accomplishing ever-increasing mission demands. Personnel are well trained and strive for customer satisfaction.

Although evaluation results have been positive, some systemic trends have been identified as noted below.

## INCOMPLETE EVALUATIONS

Normally a records review is the first area that is evaluated during a DES visit. Both the Individual Aircrew Training Folder (IATF) and the Individual Flight Records Folder (IFRF) are checked for accuracy and completeness. Inconsistencies are sometimes found for entries of required evaluations on the DA Form 7122-R. Specifically, the TC 1-218 ATM states that some maneuvers of the instrument evaluation must be flown in either IMC conditions or simulated IMC, and the unusual attitude recovery maneuver must be evaluated under simulated IMC conditions. Units should ensure that the APART evaluation requirements are

met by completing the required maneuvers in the flight mode stated in the ATM.

## EVALUATOR DOCUMENTATION

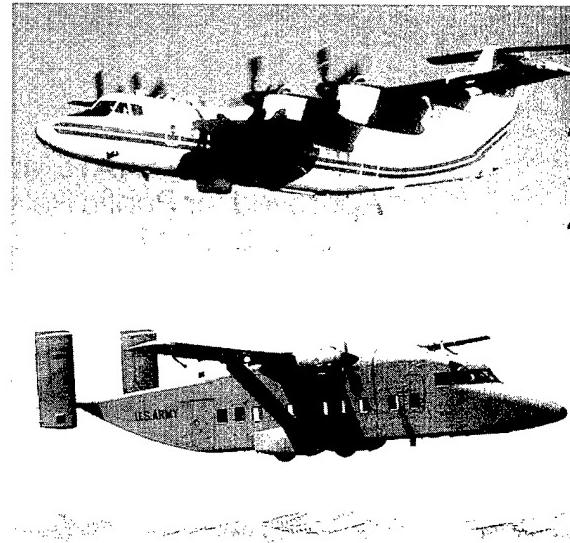
TC 1-210 requires documentation of all evaluations. Often the evaluator is not the one making the entry into the record. DES recommends that if the person making the entry is not the evaluator, a remark should be made on the back of DA Form 7122-R indicating the evaluator's name, rank and position.

## CONTINUATION TRAINING

Units generally have great training programs to progress newly assigned crewmembers to readiness level 1. Unfortunately, the flight schedule becomes so demanding that once a crewmember becomes mission ready, no time is set aside to make continuation training flights. Due to the nature of the fixed wing mission, instrument flight evaluations are normally exceptional check rides. Fixed wing aviators are well versed in the instrument flight mode. Conversely, stands evaluations tend to be weaker due to less training on ATM maneuvers. Commander's and Instructor pilots need to place more emphasis on the "upper air work maneuvers."

## ACADEMIC TRAINING

TC 1-210 and unit SOPs



require academic training programs. Most units have exceptional academic training programs. Classes vary from VHS videotapes to computer programs to guest speakers. The shortfall for most units is the documentation process and procedures for make-up training. Units need to develop an accurate documentation procedure and a viable make-up procedure and place these in the unit SOP.

## No-NOTICE PROGRAM

Normally the no-notice program of the larger units is more aggressive than that of the smaller units. Smaller units with one instructor and just a few pilots find it harder to accomplish no-notice evaluations due to mission loads, training requirements, and aircraft downtime. Also, in the smaller units, the instructor flies with most of the unit's aviators on a regular

basis and may not see the need for an additional flight for a no-notice evaluation. This may lead to complacency. Units should develop a no-notice program that challenges the aviators to maintain proficiency throughout the year, not just during the APART period. A no-notice evaluation may be a written, oral or flight evaluation. Bringing in a SP/IP/IE from other units gives an outside perspective to the unit's training program. Units

should ensure the no-notice evaluations are documented on the DA Form 7122-R.

*Crew Endurance.* Crew Endurance tracking has been a problem in some fixed wing units. AR 95-1 states that the Commander will design a program tailored to the unit mission and include it in the unit SOP. To ensure that crewmembers remain within crew endurance limits, a tracking system should be used. There are many ways of tracking crew endurance. Many

units use a computer program to calculate duty time and flight time. Aircrew mission briefing officers are required to consider crew endurance during the mission planning (crew selection) process, and a computer program makes that easier.

All in all, positive trends continue, despite ever-increasing mission demands.

—CW4 Kerry Lambert, Fixed Wing Branch, Directorate of Evaluation and Standardization, Ft. Rucker, AL, DSN: 558-2453, (334) 255-2453, [lambertk@rucker.army.mil](mailto:lambertk@rucker.army.mil)

## OPARS Flight Planning Software

The Optimum Path Aircraft Routing System (OPARS) is a free Department of Defense preflight planning aid, which integrates forecast atmospheric conditions with the pilot's proposed flight profile to provide an optimized flight plan. It minimizes fuel consumption and time en route for each leg. Additional information is available in reference (a), which is available upon request. OPARS serves as a supplement to the DD-175 (Military Flight Plan) and DD-175-1 (Military Flight Weather Brief).

OPARS consists of a set of computer programs that select optimum fuel efficiency routes for aircraft. Within the context of OPARS, an optimum route is defined as the selected aircraft path and altitude that is constrained by aircraft performance parameters, weather conditions, flight regulations, and minimum total fuel consumption. OPARS comprises four sub-systems:

**Customer Interface:** Provides an interface for the OPARS user to generate and submit OPARS requests and for the OPARS Duty Petty Officer, at Fleet Numerical, to monitor, control, and assist in flight plan development.

**1. Flight Planner:** Computes the optimum route and performance parameters for each aircraft in support of flight operations.

**2. Aeronautical Database:** Consists of aircraft performance characteristics, route structures, and boundary information required for the satisfactory performance of the OPARS.

**3. Environmental Database:** Consists of Flight Level wind and temperature fields (Flight Levels 1,000 through 45,000 feet). Temperature Fields are produced twice daily and are derived from the Fleet Numerical Naval Operational Global Atmospheric Prediction System (NOGAPS) forecast model. Flight Level wind and temperature fields based on climatology are also available.

The OPARS user is the individual interacting through a personal computer linked with the Fleet Numerical computer system (FLENUMMETOCSEN). The OPARS user builds a flight plan request on their computer with the aid of a graphical user interface and submits the flight plan request to the Fleet Numerical host computer for processing. Included within this request will be such information as aircraft type, number of flight legs, points of departure, times of departure/arrival, points of arrival, and other pertinent information as required.

After the flight plan request is submitted to and accepted by the system, the Flight Planner begins selecting an optimum route for the

aircraft to fly. During this building process the Flight Planner will call on different routes that could be used to fly from the point of departure to the point of arrival. These routes are flown while considering critical environmental data, flight restrictions and aircraft parameters. The route and flight altitude that provides the optimum fuel consumption is chosen. As the final step in the process, the information is formatted as a flight plan and is downloaded to the OPARS user's personal computer. Delivery to flight personnel completes the process.

## USER ACCESS TO OPARS

OPARS Flight Plan Requests are delivered to FLENUMMETOCCEN and completed OPARS Flight Plans are returned to the OPARS user by the following methods:

- a. **Internet.** Connection to FLENUMMETOCCEN is made via the Internet using standard web browser software.
- b. **NIPRNET.** FLENUMMETOCCEN host computers are accessed via NIPRNET the same way as described in the Internet. User is responsible for obtaining the proper NIPRNET account and configuring the appropriate items in the OPARS communication software.
- c. **Dial-Up.** The OPARS Customer Interface contains the necessary software to provide a Commercial or DSN connection to FLENUMMETOCCEN.
- d. **Telephone Requests.** Flight plans may be requested by telephone. Contact the OPARS Duty Petty Officer. The OPARS Duty Petty

Officer takes the Flight Request information, runs the request and returns the completed flight plan via Fax or e-mail.

If your aircraft (either fixed or rotary wing) is not listed in the OPARS database, contact OPARS to get your aircraft's performance profile added.

## USER RESPONSIBILITY

It is the responsibility of the flight forecaster or OPARS user to review OPARS products to ensure their consistency/correctness with present and forecast synoptic conditions.

*OPARS Point of Contact: OPARS Duty Petty Officer Technical/software aspects*

*Commercial: 831-656-4453/4324, (831) 656-4471/4431*

*DSN: 878-4453 (312-878-4486)*

*DSN: 878-4486 (312-878-4486)*

*E-mail: cdo@fnmoc.navy.mil or opars@fnmoc.navy.mil*

To get started, call the above numbers; or via the internet go to: <http://fnmoc.navy.mil>

1. Select Public Access.
2. Scroll down left side of page to "Contact Us" then go to: "Request Account".
3. You will be assigned an OPARS and Web account and password.

The Web account will allow you to download the OPARS Customer Interface software.

The OPARS account will then allow you to submit Flight Plan Requests to FLENUMMETOCCEN.

*—CWS Dave Bean, Chief, Fixed Wing Branch, Directorate of Evaluation and Standards, Fort Rucker, AL DSN 558-2453, (334) 255-2453, beand@rucker.army.mil*

## Starching Aviation BDUs—NOT!

Some soldiers want a crisp look to their BDUs, so they starch them. That's permitted, according to DA Msg DAPE-HR-S 2017332 Nov 92, but remember that starch shortens the life of the fabric. (The message adds that commanders will not require starched BDUs.)

But when it comes to aviation BDUs or any NOMEX coveralls, DON'T STARCH! They are made to be fire-resistant and heat resistant, but if you starch them, the protection is defeated. Starch will burn and you're toast.

—PS Magazine



# How Fixed Wing Warrant Officers are Selected

Each summer, warrant officer division conducts a selection board for eligible warrant officers that are interested in applying for the fixed wing multi-engine qualification course. This is a highly sought after course. We average over 400 applicants for the 35 quotas that are normally allocated to warrant officer division.

Eligibility criteria may change slightly from year to year, but for the FY 2000 and FY 2001 board, all ranks and all MOSs were eligible to apply, and all ranks and all MOSs were selected, except for WO1s. The only eligibility requirement is that you must be in a PCS status during the fiscal year of the training. PCS status is defined as having a DERO from an OCONUS location during that fiscal year, having a minimum of 24 months on station in a CONUS assignment during that fiscal year, or coming out of a degree completion program (DCP) during that fiscal year.

The board is conducted as closely as possible to the guidelines of any Title 10 promotion selection board, and consists of a minimum of four aviation warrant officers. Each applicant's file is reviewed and voted. The vote is a "blind vote", meaning that voting officers cannot see how the other voting officers rated the file. When the voting is complete, the scores are tallied, and the top 35 scores make the initial selection. The selection is based on past performance, as an indicator of future potential. Past performance is based mostly on Officer Evaluation Reports (OER); however, assignment history, civil schooling, and official DA photo are also reviewed.

## SHORTFALLS

If, during the initial call to one of the selectees, or at any time during the year, one of the selectees turns down the training, or cannot

attend the training, the next eligible officer will be called. That is defined as the next officer on the list that has not already PCSED. The fixed wing qualification course, as all aircraft qualification courses, is funded for *TDY enroute only* under the new Military Training Specific Allotment (MTSA) funding guidelines. Again, warrant officer division only receives 35 quotas annually. The rest of the quotas are owned by the National Guard, U.S. Army Reserves, commissioned officer branch, Naval Test Pilot Program, and other agencies. These agencies own their quotas, and warrant officer division cannot fill them if THEY have a shortfall.

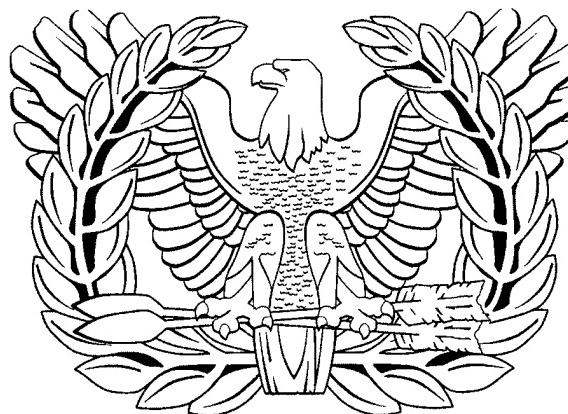
## UTILIZATION.

Not all warrant officers that attend the fixed wing course will get an initial utilization tour, or continue to fly fixed wing for a career after an initial utilization tour. Every effort is made to utilize those selected, but shortages in some rotary wing MOSs will be filled by officers already qualified in those aircraft. All selectees are briefed that if they attend the training, they will incur a 3 year Active Duty Service Obligation, even if they are not utilized in a fixed wing aircraft. We have had no one decline the training based on this.

## AH-64 PILOT UTILIZATION IN FIXED WING AIRCRAFT.

Warrant officer division is finally able to start releasing some of the AH-64 pilots that attended fixed wing training in FY 1999 and FY 2000. With the AH-64 pilot recall program having been in effect for over two years, and a slowdown in the number of warrant officers leaving active duty, the AH-64 community can now afford to allow some of those selected to have a fixed wing utilization assignment. Again, this will be on a case-by-case basis.

—CW4 James C. Reardon, 151A, 154C, 155E/F/G Career Manager, DSN 221-5284, (703) 325-5284, reardonj1@hoffman.army.mil



# CPSC Urges Seasonal Furnace Inspection to Prevent Carbon Monoxide Poisonings

The U.S. Consumer Product Safety Commission (CPSC) urges consumers to have a professional inspection of all fuel-burning appliances including furnaces, stoves, fireplaces, clothes dryers and space heaters to detect deadly carbon monoxide (CO) leaks.

These appliances burn fuels: typically gas, both natural and liquefied petroleum; kerosene; oil; coal; and wood. Under certain conditions, these appliances can produce deadly CO. However, with proper installation and maintenance, they are safe to use.

CO is a colorless, odorless gas produced by burning any fuel. The initial symptoms of CO poisoning are similar to flu, and include headache, fatigue, shortness of breath, nausea and dizziness. Exposure to high levels of CO can cause death.

"CO poisoning associated with using fuel-burning appliances kills more than 200 people each year and sends more than 10,000 to hospital emergency rooms for treatment," said CPSC Chairman Ann Brown.

CPSC recommends that the yearly professional inspection include checking chimneys, flues and vents for leakage and blockage by creosote and debris.

Leakage through cracks or holes could cause black stains on the outside of the chimney or flue. These stains can mean that pollutants are leaking into the house. In addition, have all vents to furnaces, water heaters, boilers and other fuel-burning appliances checked to make sure they are not loose or disconnected.

Make sure your appliances are inspected for adequate ventilation. A supply of fresh air is important to help carry pollutants up the chimney, stovepipe or flue, and is necessary for the complete combustion of any fuel. Never block ventilation air openings.

CPSC recommends that every home should have at least one CO alarm that meets the requirements of the most recent Underwriters Laboratories (UL) 2034 standard or International Approval Services 6-96 standard.

## RECALL PROGRAM TO REPLACE VENT PIPES

Consumers should also have the vent pipes on their heating systems inspected. In 1998, virtually the entire furnace and boiler industry together with the manufacturers of high-temperature plastic vent (HTPV) pipes joined with CPSC to announce a vent pipe recall program. The program's

purpose is to replace, free of charge, an estimated 250,000 HTPV pipe systems attached to gas or propane furnaces or boilers in consumers' homes. The HTPV pipes could crack or separate at the joints and leak CO.

Consumers can check the vent pipes attached to their natural gas or propane furnaces or boilers to determine if they are part of this recall. They can be identified as follows: the vent pipes are plastic; the vent pipes are colored gray or black; and the vent pipes have the names "Plexvent(r)," "Plexvent(r)II" or "Ultravent(r)" stamped on the vent pipe or printed on stickers placed on pieces used to connect the vent pipes together.

Consumers should also check the location of these vent pipes. For furnaces, only HTPV systems that have vent pipes that go through the sidewalls of structures (horizontal systems) are subject to this program.

For boilers, all HTPV systems are subject to this program. Other plastic vent pipes, such as white PVC or CPVC, are not involved in this program.

After checking the vent pipes, consumers should call the recall hotline toll-free at (800) 758-3688, between 7 a.m. and 11 p.m. ET, seven days a week, to verify that their appliance venting systems

are subject to this program. Consumers with eligible systems will receive new, professionally installed venting systems free of charge. Additionally, consumers who already have replaced their HTPV pipe systems may be eligible for reimbursement for some or all of the replacement costs.

The U.S. Consumer Product Safety Commission protects the public from unreasonable

risks of injury or death from 15,000 types of consumer products under the agency's jurisdiction. To report a dangerous product or a product-related injury, call CPSC's hotline at (800) 638-2772 or CPSC's teletypewriter at (800) 638-8270, or visit CPSC's web site at <http://www.cpsc.gov/talk.html>. For information on CPSC's fax-on-demand service, call the above numbers or

visit the web site at (<http://cpsc.gov/about/who.html>). To order a press release through fax-on-demand, call (301) 504-0051 from the handset of your fax machine and enter the release number. Consumers can obtain this release and recall information at CPSC's web site at <http://www.cpsc.gov>.

—Ken Giles, Consumer Product Safety Commission, (301) 504-0580, Extension 1184, [info@cpsc.gov](mailto:info@cpsc.gov)

## NCO CORNER

# U.S. Army Fixed Wing Maintenance Procedures

A proposal to transition from fixed wing maintenance test flights to functional check flights in line with best commercial safety and maintenance practices is currently being staffed and coordinated within AMCOM, DES, DCSLOG, DCSOPS, and the MACOMs. Accomplishing this transition will require updating current publications and outlining maintenance training programs for all Army fixed wing aircraft.

TM 1-1500-328-23, *Aeronautical Equipment Maintenance Management Policies and Procedures*, defines Army airworthiness standards and requirements for maintenance test flights for all standard Army aircraft. Thirty-seven percent of the Army's fixed wing fleet is composed of nonstandard aircraft.

The one standard Army fixed wing aircraft is the C-12 and includes over 15 different series: (C, D1, D2, F1, F2, F3, T1, T2, T3, R, R+, U, RC-12G, H, K, N, P, and Q). There are 13 types of non-standard fixed wing aircraft.

Fixed wing maintenance contracts are based upon best commercial practices in order to reduce direct costs and increase efficiencies of the fleet. The entire Army fixed wing fleet is maintained by civilian contractors to civil Federal Aviation Regulations (FAR) standards as defined in the contract's Statement of Work. The FARs provide for best commercial practices and other techniques to determine airworthiness, which causes a conflict between the contracts and current Army publications.

Recommended changes to TM 1-1500-328-23 will allow functional check flights to

be accomplished in lieu of maintenance test flights in fixed wing aircraft. AR 95-1 will be changed to relieve the academic requirement found in paragraph 4-29b(2) to attend the Maintenance Manager (MM) portion of the Maintenance Test Pilot Course (MTPC).

FAR Part 91.407(b) requires an aircraft to be flown to determine airworthiness after having maintenance performed. FAR 91.407(c) does not require the aircraft to be flown if, prior to flight, ground tests, inspection, or both show conclusively that the maintenance performed has not appreciably affected the flight operation of the aircraft.

If you have any questions about this topic, contact the undersigned.

—CW4 Aycock, Fixed Wing Branch, Directorate of Evaluation and Standardization, Ft. Rucker, AL, DSN: 558-2453/1493, (334) 255-2453/1493, [aycocke@rucker.army.mil](mailto:aycocke@rucker.army.mil)

# "Just Because It's Installed Doesn't Mean It Works!"

**M**ost of the Army's fixed wing aircraft are equipped with either a Flight Data Recorder (FDR) or a Cockpit Voice Recorder (CVR). Some aircraft carry both. But just because these recorders are installed on your aircraft doesn't mean they're working. A recent Class A accident demonstrated this.

The aircraft crashed in a very remote and inaccessible location. There were no survivors and no witnesses to the accident. Nevertheless, the accident investigators were hopeful of discovering what had happened because the aircraft had carried both a Flight Data Recorder and a Cockpit Voice Recorder. Both recorders were recovered and transported back to the Army Safety Center for analysis. Unfortunately, the recorders revealed no information about the accident. The FDR analysts discovered that in one of the recorders the magnetic tape had fallen off the spool, perhaps years earlier. The information stored on the tape, although recoverable, had been recorded long before and had nothing to do with the accident. The analysts discovered that the other recorder, however, was functional, but had again recorded

nothing to do with the accident. The source of data for the recorder, a Signal Data Converter, had malfunctioned and had not sent any data to the recorder.

Some of the Army's FDR's and CVR's have a FDR/CVR Test/Pass/Fail Annunciator/Switch located in the cockpit. This switch permits the crew to test the functionality of the recorder. Many more aircraft, though, are not equipped with such a switch. It then becomes necessary for the unit to pull out their maintenance manuals and periodically inspect their recorders to ensure they work. If the unit does not have manuals for its recorders, they must be ordered. There are too many kinds of recorders on Army aircraft to include here. The box below lists the most common.

If you need to order manuals for your recorders, you can contact:

**L-3 Communications**  
**Aviation Recorders Division**  
**6000 Fruitville Road**  
**Sarasota, FL 34232**  
**(941) 371-0811 or (941) 371-5591 (FAX)**

The following table can help:

## Common Army Recorders

Description	Loral P/N:	ATA No.
<b>Fairchild Cockpit Voice Recorder, Model A100N/A23-70</b>	<b>N/A</b>	<b>23-70</b>
<b>Fairchild Solid-State Cockpit Voice Recorder, Model A200S</b>	<b>165E1233-00</b>	<b>23-70-03</b>
<b>Fairchild Solid-State Flight Data Recorder, Model F1000</b>	<b>165E0503-00</b>	<b>31-30-02</b>

If you have a recorder that is not listed here, you can contact the Army Safety Center for help in maintaining and ordering manuals for your recorders:

U.S. Army Safety Center  
FDR Analysis Section  
Ft. Rucker, AL 36362-5363  
(334) 255-2259

—Joseph P. Creekmore, Jr. Chief, FDR Analysis Section, USASCM DSN 58-2259 (334) 255-2259. creekmoj@safetycenter.army.mil

# Fixed Wing Manual Updates

## AIRCREW TRAINING MANUAL (ATM), TRAINING CIRCULAR 1-218, UTILITY AIRPLANE C-12 UPDATE

In June 2000, the Directorate of Evaluation and Standardization (DES) hosted a closed ATM conference to discuss TC 1-218 issues. Attendees representing DES were CW5 Dave Bean and CW4 Ed Aycock, the National Guard was represented by CW5 Ken Butler and CW4 Greg Hilewitz. The Aviation and Missile Command (AMCOM) was represented by Mr. Mike Kather and CW5 Barry Penny. The US Army Safety Center was represented by Mr. Gary Braman. Mr. J.P. Carrithers attended as author and also the Special electronic mission aircraft (SEMA) representative for the US Army Intelligence Command, Ft. Huachuca, AZ.

After discussing the National Guard and DES issues, it became apparent to all that the life cycle of the manual had reached the stage that the responsibility needed to be transferred from USAIC to DES. Additionally, the attendees recognized that needs for the SEMA Guardrail community were understandably different from those of the utility community. Mr. Carrithers remained the writer and SEMA training proponent for TC 1-219.

When the suspense for field input to the draft TC 1-218 ended, the input was evaluated and most of the comments were incorporated into the manual.

Common to both manuals was the decision to parallel crew coordination callouts and the revision of the maintenance chapter to reflect functional check pilots as much as possible.

Since then the revision has been centered on incorporating the guidance for training outlined in the new TC 1-200 Commander's Guide into Chapter 2, Training and Chapter 3, Evaluations.

Some of the proposed changes to the ATMs are:

1. Transitioning from Vr/Vlof/Vyse to a V1/V2 terminology and maneuvering performance to include standardizing crew coordination procedures and call outs.

2. Transitioning from the Performance Planning Card (PPC) to the Takeoff and Landing Data (TOLD) Card.

3. Deletion of high risk in-flight maneuvers such as the Vmc and Full Stall maneuvers.

4. Rewriting of the take-off, slow flight, and stall maneuver standards and descriptions to insure an adequate margin of safety exists while training in the actual aircraft.

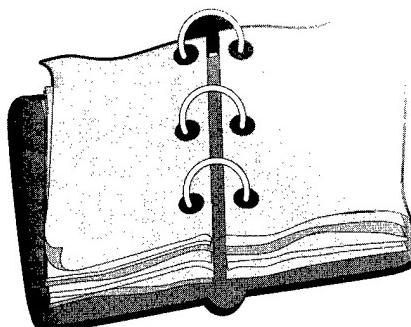
5. Establish the requirement that would mandate fixed wing aviator simulator minimums.

6. Transitioning from Maintenance Test Flight (MTF) and Maintenance Test Pilot (MTP) to Functional Check Flight (FCF) and Functional Check Pilot (FCP) qualifications and procedures.

The new TC 1-218 ATM will establish the standard format for future rewrites of all fixed-wing ATMs.

## AIRCREW TRAINING MANUAL (ATM), TC 1-219, GUARDRAIL AND GUARDRAIL COMMON SENSOR AIRPLANE RC-12 UPDATE:

In October 2000, the United States Army Intelligence Center and Fort Huachuca hosted a SEMA Standardization and Safety conference. The most pressing issue the attendees voiced concerned the new TC 1-219 publication date. Attendees were advised that the TC 1-219 was awaiting DES input on how TC 1-200 was going to be integrated into Chapters 2, Training and Chapter 3, Evaluations in TC 1-218. Once this was completed the same chapters in TC 1-219 could be completed and submitted to DOTDS for editing and publication. TC 1-219 is not tied to the revision of TM 1-1510-225-10 and should be published by the time of this *Flightfax* publication.



## **C-12 OPERATOR'S MANUAL UPDATE:**

The C-12 fleet (G12C/D1, 2/T1, T2/R and F3) Operator's Manuals are currently being rewritten. The two manuals being revised are the TM 1-1510-218-10 and the TM 1-1510-225-10. Each of the manuals will include several different series of C-12 aircraft and be approximately 1,500 pages in length. When completed, the manuals will be issued to the field on a compact disk (CD). The user will have the option of identifying which C-12 series he or she is operating and only the applicable areas of the manual for that aircraft will be viewed and available for printing. This aircraft series distinction will reduce the operator's manual to a usable size and format. Following are examples of how the proposed aircraft manual and chapter distinctions are drawn:

TM 1-1510-218-10 will include the C-12C, C-12D1, C-12D2, C-12T1 and the C-12T2 series aircraft.

Chapter 3 will include avionics common to all C-12 aircraft listed above. Chapter 3A will include C-12C and C-12D1 aircraft avionics. Chapter 3B will cover the C-12D2 aircraft avionics.

Chapter 3C will include both the C-12T1 and T2 aircraft avionics.

Chapter 7 will address both the performance

data for the C-12C and D1 aircraft.

Chapter 7A will include both the performance data for the C-12D2, T1 and T2 aircraft.

## **TM 1-1510-225-10 WILL INCLUDE THE C-12F3, C-12R, AND C-12T3 AIRCRAFT.**

Chapter 3 will include avionics common to the C-12F3, C-12R, and C-12T3. Chapter 3A will include the C-12R aircraft avionics. Chapter 3B will cover the C-12T3 aircraft avionics. Chapter 3C will address the C-12F3 aircraft avionics.

## **EXPECTED RELEASE DATES:**

Because of the depth of the proposed changes made to the two manuals, the TC 1-218 ATM and 225-10 will be released concurrently. DES Fixed Wing will provide to the field implementation guidance expected to require both academic and flight instruction addressing the changes made to both manuals. At the time of the writing of this article, the 218 ATM and the 225-10 were expected to be released in February or March of 2001. The release date for the 218-10 will be announced later.

—CW5 Bean, Fixed Wing Branch Chief, Directorate of Evaluation and Standardization, Ft. Rucker, AL; DSN: 558-2453, (334) 255-2453/1752, [beand@rucker.army.mil](mailto:beand@rucker.army.mil)

## **AAAA Annual Convention set for April**

"Aviation in the Army Transition — Strategy for 2001 and Beyond" is the theme of the Army Aviation Association of America's annual meeting. Planned for 4-7 April in Charlotte, NC, the event boasts GEN Eric K. Shinseki, Chief of Staff, US Army, as its invited keynote speaker.

An official housing registration form for the convention appears in the 31 December issue of *Army Aviation*. Opryland Travel, 800-677-9526, is available to assist with travel arrangements.



# Accident briefs

Information based on *preliminary reports of aircraft accidents*

## AH64



### Class B

#### A series

■ During taxi for takeoff, aircraft experienced fire in the aft cargo compartment. Crew executed emergency shutdown. Firefighters extinguished fire.

### Class C

#### A series

■ During postflight inspection, damage was found to aircraft's main rotor blade. Bird strike is suspected.

#### D series

■ Aircraft was cleared for takeoff after refueling when No.1 engine experienced overtorque. No.2 engine was in the "fly" position but had not been started after refueling was completed.

### Class E

#### A series

■ During OGE, aircraft's oil hydraulic utility bypass light illuminated when gun was actioned. Aircraft proceeded to airfield without further incident. Maintenance replaced the utility bypass indicator.

■ Pilot Night Vision System went out of focus and could not get useable FLIR image through sensor. Replaced PNVS.

## CH47



### Class E

#### D series

■ During NVG mission, flight engineer noticed that the aircraft's No.2 flight control hydraulic temp was fluctuating. The mission was terminated and aircraft was returning to the departure point when the No.2 flight control hydraulic and No.2 AFCS caution lights illuminated. The emergency procedure was completed. Maintenance replaced pump.

## OH58



### Class C

#### D (r) series

■ NP reading reached 124 percent for 6 seconds while pilot was attempting a manual FADEC operation.

#### D (l) series

■ Aircraft drifted back into tree during aerial gunnery. Damage to all four tail rotor blades.

■ During a maintenance run-up, TGT rose rapidly, throttle was closed and the start was aborted. Engine monitor showed 144 degrees for 4 seconds. Maintenance personnel determined that the engine required replacement.

### Class E

#### C series

■ During runup, ENGINE OUT light illuminated. No other indication of engine failure was present. Replaced No.1 tachometer generator. Maintenance operational check OK.

## TH67



### Class B

■ During hover flight training, aircraft dipped nose low and to the left. Main rotor blades made ground contact. Aircraft came to rest on its right side. Main rotor blades were destroyed. Fuselage was damaged with loss of tailboom and tail rotor assembly. Two personnel were taken to hospital, treated and released.

## UC35



### Class E

#### A series

■ At FL390 the No.2 inverter fail light illuminated. Crew performed the appropriate checklist procedures for an inverter failure. The aircraft was landed without incident. Inverter was replaced, and aircraft was returned to service.

## UH1



### Class E

#### H series

■ Aircraft was in straight and level flight at 1,000 feet. The PC noticed the smell of hydraulic fluid and then observed the master and hydraulic caution lights come on. After proper notification, the crew performed a run-on landing to airfield where aircraft was shutdown without further incident. During maintenance inspections at airfield it was discovered that the hydraulic pump was not installed correctly causing the leather packing and rubber "O" rings to fail, resulting in total loss of hydraulic fluid.

## UH60



### Class C

#### A series

■ During takeoff, Chalk 3 of 4 observed a large bird descend through the tail rotor disc of Chalk 2. Entire mission was aborted. All aircraft landed safely without further incident. Damage to two tail rotor blades and a portion of the stabilator found on postflight inspection of the struck aircraft.

■ During postflight inspection, damage was found to trailing edge of stabilator, possible tail wheel damage. Aircraft had been practicing landings to a sod strip.

### Class E

#### A series

■ During cruise flight, generator became inoperable. Aircraft landed without further incident. Replaced generator control unit.

#### L series

■ During flight, aircraft's stabilator failed out of auto mode, would not reset. Later stabilator reset on its own. Aircraft landed without incident. When avionics checked, could not duplicate, test flown OK. Aircraft released for flight.

# The UC-35 and Army Fixed wing Aviation

With the Army's role in our national military strategy changing from a forward deployed force to a CONUS based, force projection army, fixed wing aviation has been challenged to provide the force with a fast and efficient medium range (500-1,800 nautical mile) transport.

This aircraft must provide the Army with an all-weather transport for commanders, their staffs, and critical equipment and parts. The Army's Modernization Plan and Fixed Wing Investment Strategy identified the need for an airframe capable of rapid worldwide self-deployment, while continuing to provide for cost-effective, intra-theater missions ranging from support-and-stability operations to wartime operations.

With the Army downsizing and operating under severe budget constraints, this airframe had to be capable of getting the decision makers and their staffs to the right place in the shortest possible amount of time with the greatest efficiency.

The C-12 Huron has been the workhorse of the fixed wing fleet since the 1970s. Originally intended to perform the Army's short range mission (up to 500 nautical miles), the C-12 is routinely tasked to undertake missions in excess of 1,000 miles. Although the C-12 has been a very reliable airframe it lacks the range, speed and efficiency to

optimally perform the medium range mission.

A new aircraft was needed to fill the void. The gap between the operating capabilities of the C-12 and C-20 were bridged in 1995 when the Fixed Wing Product Management Office chose the Cessna UC-35 as an answer to the Army's challenges. Greater operating capabilities, along with low acquisition and maintenance costs, made the UC-35 an immediate hit with the fixed wing community. The UC-35 has proven to be cheaper and more reliable than the C-12 when performing missions of more than 300 nautical miles. Twenty UC-35s have been fielded so far, with an approval to field a total of 67 to support the Army's medium range requirement.

Additionally, the immediate success and value of the UC-35 has prompted studies into the feasibility of replacing the C-12 with the UC-35, or another similar commercial aircraft, for the Army's short/medium range mission.

A key factor in the ability of the UC-35 and other Army fixed wing aircraft to fulfill their missions in the future will be their ability to conform to Global Air Traffic Management (GATM) procedures. The purpose of the GATM program is to preserve operational readiness and Department of Defense (DoD) access to global aviation routes into the 21<sup>st</sup> century by equipping military aircraft to meet the emerging

requirements of the worldwide air navigation system. The International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA) and other civil aviation authorities plan to implement new air traffic management architecture to relieve the tremendous strain on the air



traffic control (ATC) system.

It is intended that the GATM group of technologies, also referred to as Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) in civil aviation, will ultimately provide the means to achieve dynamic routing and overall safer, more reliable training, and safe recovery of assets. Dynamic routing means that aircraft would no longer have to use prescribed tracks and airways, but would be free to select flight paths optimum for their missions. Although civil aviation authorities cannot mandate system capability for the military, commanders will have to deal with civil air traffic services, and may need to receive data feeds from FAA and other civil aviation authorities as a means of exchanging time critical flight information and of monitoring flight operations.

Failure to equip military

aircraft for civil compliance would have significant operational and organizational impact on ground

commanders, forcing aircraft to fly non-optimum/longer routes and altitudes, resulting in increased flight times, increased fuel consumption and decreased payloads. Delays in delivery of combat troops and equipment, as well as delays in arrival of combat forces, may weaken a theater commander in chief's posture during the critical first days of an operation.

Additionally, training and training support missions will be excluded from affected airspace resulting in critical training deficiencies.

To avoid these and other difficulties the Fixed Wing Program Manager plans to modernize aircraft to meet existing and emerging GATM requirements. The UC-35 is an example of the avionics-modernization effort. The A-models that are currently fielded are receiving an avionics upgrade that will bring the aircraft into compliance with near and mid-term GATM requirements. This upgrade is scheduled for completion by September 2000. The first UC-35Bs—scheduled for delivery in December 2000—will be GATM compliant when they are delivered to the Army.

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# Obstacle Avoidance During Army Fixed Wing Flight Operations

**A**s air travelers, most of us assume a given level of safety when we purchase a ticket on a civil air carrier; a level of safety that includes properly maintained equipment and highly proficient flight crews that will be able to transport us safely and proficiently to our destination. We assume a level of safety exists that extends from normal to emergency operations helping the flight crew to negotiate emergencies resulting in successful outcomes.

One goal of Army fixed wing aviation operations is to maintain the same level of safety as our counterparts within the United States airline industry and we have been able to do that. To maintain that level of safety, DES and the MACOMs continuously review Army policy and procedures and civil regulatory changes to ensure that our aviators and equipment are able to operate at that high level.

Recently however, an issue was brought to light that concerns commanders and standardization officers: if an airplane experiences an engine failure on takeoff or departure, will the airplane have sufficient performance capabilities to remain clear of terrain and obstacles?

## THE ISSUE

For flight operations, the Federal Aviation

Administration (FAA) requires airlines and air carriers to maintain positive obstacle clearance for all departures, whether operating in instrument meteorological conditions (IMC) or visual meteorological conditions (VMC), by computing performance planning using one engine inoperative data. Positive obstacle clearance for US airlines and air carriers must be maintained for the entire duration of the flight: takeoff, en route, and approach.

When operating under instrument flight rules (IFR), Army aviators are required to comply with any published departure procedure (DP) in accordance with 14 CFR Part 91.129 and AR 95-1. Presently, no requirement exists for Army fixed wing aircraft to apply worse case (one engine inoperative) data to performance planning data for instrument departures. If an Army fixed wing aircraft experiences an engine failure either right at, or immediately after lift off, there are presently no assurances that the aircraft has sufficient climb performance to clear obstacles in the flight path. Assuming there is at least some one engine inoperative climb performance, this may not be much of a problem in VMC conditions, but is a critical requirement for IMC flight.

The concern that was highlighted above surfaces

when we make the startling realization that flight operations of U.S. Army fixed wing aircraft can only provide a comparable level of obstacle clearance safety as U.S. flag carriers when departure climb performance is based on one engine inoperative data.

## BACKGROUND

The Army procures commercial, off-the-shelf aircraft directly from the manufacturer. When an aircraft manufacturer sells an aircraft to any customer, it is required to have a certified minimum level of performance. That level of performance is based upon a worse case scenario: one engine inoperative. Most Army fixed wing aircraft were manufactured and certified under 14 CFR Part 25 for transport category aircraft or Part 23 for normal, utility, and commuter category aircraft. Aircraft manufactured and certified under these portions of the FARs require initial one engine inoperative climbs of 2.0 to 2.4 percent or approximately 122 to 146 feet per nautical mile. The FAA has developed instrument departure procedures in accordance with Department of Transportation (DOT) Terminal Instrument Procedures ensuring that obstacles along the departure path do not penetrate a 2.5% obstacle identification plane. To ensure obstacle clearance during the departure procedure, aircraft should climb on a standard, 200 feet per nautical mile, or 3.3% gradient. The

FAA has determined that this climb gradient is used in "normal" conditions, however no procedure or explanation exists when aircrews encounter other than normal operations.

If an obstacle is found to penetrate the departure path obstacle identification 2.5% plane, the departure climb gradient will be increased through the issue of a departure procedure (DP) to ensure obstacle clearance. In this instance, higher weather minimums are also issued to give flight crews who cannot attain the required climb gradient an alternative see-and-avoid procedure for obstacles when departing under IFR.

As you can see anyone can purchase an aircraft and operate it in the national airspace structure utilizing "normal" procedures. However, the airworthiness flight performance required at certification may not ensure obstacle clearance during other than normal (read emergency) conditions. The Army fixed wing program manager (FWPMO) continues to procure commercial, off the shelf aircraft to avoid extensive research and development costs and reduce delays in fielding. Within the fixed wing community we are realizing the distinct difference between certification standards and the professional and ethical operational standards that must be addressed.

## FURTHER CONSIDERATIONS

Recently, the FAA has changed the identification of departure procedures from what we used to know as standard instrument departures (SID) to departure procedures (DP). These DPs have further been delineated as "named" or "obstacle." All DPs provide obstacle clearance and provide aircrews a method to depart the airport and transition to the en route structure. Besides providing obstacle clearance, DPs may also be present at busier airports to increase efficiency, reduce communications, and ultimately, departure delays.

In the FAA's Aeronautical Information Manual (AIM), a question is asked that needs follow up: Who is responsible for obstacle clearance during a departure? The AIM states that when a pilot follows the published procedure the DP provides obstacle protection. If a pilot chooses not to utilize a DP or to climb in VFR conditions then obstacle clearance cannot be assured. Also, if the aircraft maneuvers farther from the airport than the published visibility minimums within the DP then obstacle clearance is not guaranteed.

Aircrew responsibilities outlined in the AIM prior to departing under IFR conditions include determining whether a DP is available to use for obstacle clearance and transition to the en route structure. If a DP is available, does alternate weather exist that will assist the pilot in

seeing and avoiding obstacles or should the aircrew follow the DP? The AIM also states that the pilot must consider the effect of degraded climb performance and actions to take in the event of an engine loss during the takeoff or departure.

As mentioned earlier, the FAA requires all airlines and air carriers to have positive obstacle clearance during the duration of the flight from takeoff and departure, en route, and for the approach phase, as well. It seems that the FAA only recommends positive obstacle clearance for operations other than airline and air carriers.

## CURRENT DISCUSSION

Within the Army fixed wing community, several MACOMs have addressed the requirements for positive obstacle clearance. The Operational Support Airlift Agency (OSAA) at Fort Belvoir was the first MACOM to implement minimum climb performance based on worse case information. The OSAA has requirements for minimum climb gradients in all of their aircraft using one engine inoperative performance data during all departures. If a DP has alternate minimum weather in lieu of a higher climb gradient, the OSAA requires their aircrews to adhere to the published weather minimums unless they can comply with the higher than standard climb gradient using one engine inoperative climb performance.

The FORSCOM Supplement to AR 95-1 also has minimum climb gradient requirements for fixed wing aircraft. For all takeoffs in FORSCOM fixed wing aircraft, the aircraft must have at least a 200-foot per nautical mile (3.3%) single engine climb gradient. This climb gradient meets the intent for standard climb gradients, but doesn't address the eventualities that may arise when an aircraft experiences an engine failure during takeoff or departure.

I think that you can see that some of our fixed wing operators within the Army are striving for that equivalent level of safety as our airline and air carrier brethren, but discussion continues on this issue. Discussion centers on the differences between Army and civil operations, between peacetime versus wartime operations, and we really need to protect our force but is this one way to do it. Prior to the OSAA implementation of their required climb gradient procedures in 1996; several of the Standardization Officers within the section conducted an informal survey of the Department of the Army Civilian (DAC) workforce. The survey centered on their knowledge and perception of safety levels of the airlines and, at that time, OSAA operations. These DAC staff members were shocked and dismayed when they found out that in the unlikely event that an aircraft they were passengers on experienced an engine failure on takeoff there

was a high probability that the outcome would not be successful.

The last discussion issue concerns the ethical and moral requirement of the aircrew to inform the passengers when their aircraft is unable to perform at a safety level equivalent to the airlines. People who take the side of total disclosure see no problem in telling our passengers this information. They think it is a part of an unwritten contract that exists when someone participates in air travel in an Army aircraft as a passenger. They also think that just because the crew is willing to depart and accept the risk the passengers may not want to be a party to that risk assessment and acceptance.

The others side of the debate centers on the focus of military operations, mission accomplishment, and the low probability of this type of occurrence happening. Another point of the debate from this side becomes the use of information disclosure as a scare tactic. Supporters claim that the use of these "scare tactics" will generate an uneasiness and lack of confidence in our operations. Resolution

Presently DES, in conjunction with input from the MACOMs, is trying to develop policy that governs Army fixed wing performance planning for all departures. While this policy is being developed, some of the issues we are covering include:

- a. Requiring a minimum,

one engine inoperative, climb performance standard for all IFR departures.

b. Requiring that when higher than standard climb gradients are published that fixed wing performance planning must assure the required departure climb gradients can be accomplished with one engine inoperative.

c. Providing relief when alternate weather minimums are provided in lieu of higher than standard climb gradients. Aircrews may use the minimum standard climb gradient when the departure weather meets the published alternate weather minimums.

d. When a climb gradient is not specified, as in departing non-instrumented airfields and VFR climbs, the aircrew may revert to the one engine

inoperative climb performance assured by compliance with takeoff weight charts in the appropriate Operator's Manual or Aircraft Flight Manual.

e. Providing some relief through a waiver process. Relief under certain situations defined by extraordinary and critical operational need and granted on a case-by-case basis by the first O-6, or higher, in the chain of command.

f. When conducting fixed wing flight operations granted under this waiver process, the pilot-in-command must brief the entire crew and all passengers that they are involved in a high-risk mission and inform them of the conditions that elevate the risk.

## SUMMARY

Providing safe customer

support is the focus of all goals within the fixed wing community whether we are transporting commanders and staff or conducting intelligence gathering operations. Aviators must always be aware of the capabilities of the equipment they operate, the limitations of the mission (which might be imposed by the environment), and their own limitations as part of the aircrew. As we identify these risks and then implement operating procedures to mitigate them we continue to protect our assets and support safe operations within Army aviation.

**-CW5 Hilewitz is a 20-year Master Army Aviator currently assigned to the Operational Support Airlift Agency performing duties as the ARNG Liaison Officer to the Fixed Wing Branch, Directorate of Evaluation & Standardization.**

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## POV Fatalities

through 31 Dec

FY01  
**22**

FY00  
**21**

3-yr Avg  
**28**



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